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Effects of Government Programs on Corn Production Costs and Returns, 1991 and 1992

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In this report... *Gross value of production, production costs, and net returns are all higher when the direct effects of Government programs are incorporated into corn cost and return estimates. Government programs raised net returns after cash expenses by \$24 per planted acre in 1991. Greater yields and higher deficiency payments in 1992 added nearly \$44 to net cash returns. North Central and Plains corn growers are most affected by Government programs since they participate to a much greater extent in the programs than growers in the Southeast and Northeast. Producer participation and annual price and yield conditions have the greatest influence on the extent to which Government programs enhance returns to corn production.*

Introduction

Traditional USDA enterprise cost and return estimates have informed policymakers about costs and returns without including the direct effects of Government programs. Cost and return estimates have deliberately excluded the direct effects of farm programs to avoid the escalating effect program benefits would have on production and program costs. For example, the cost of land is determined by the ability of land to generate income. Because programs generate income for those who control land, programs increase the cost of land. Farm price and income supports established according to the higher costs would rise. As the cycle repeats, production and program costs would continually escalate. However, not all the effects of programs can be removed from cost and return estimates. Indirect effects result from the influence farm programs have on markets for production inputs, on the market value of commodities, and on producer behavior.

If enterprise cost and return estimates are to be used to examine the profitability of producing individual commodities, the direct effects of government programs must be included. Comparative analysis of net returns for competing and alternative crops and the financial position of producers of these commodities require consideration of Government program effects. These effects are more critical for some commodities than others due to variations in program support levels and producer participation. This report examines

the extent to which Government programs enhanced the profitability of corn production in 1991 and 1992 and identifies factors that most influenced corn costs and returns.

Data and Methods

Primary data used for USDA cost and return estimates is collected in the Farm Costs and Returns Survey (FCRS). The FCRS uses a multiframe stratified sample in which each farm surveyed represents a number of similar farms, the particular number being the survey expansion factor. Each expansion factor is used to expand the FCRS sample to represent the population of all farms. Cost of production estimates are developed from specialized versions of the FCRS that collect detailed information about specific commodity production practices, machinery use, and enterprise expenditures. The FCRS sample is drawn to represent the major production regions for each commodity. Because of survey costs and concerns about respondent burden, detailed cost-of-production versions are done on a rotating basis, with selected commodities surveyed every 4-5 years. Cost estimates between surveys are updated using secondary production and price data.

Corn data used in this report was collected in a specialized version of the 1991 FCRS. The 708 respondents to the corn version of the 1991 FCRS represent 423,405 farms and 71.5 million planted corn acres, or 94 percent of U.S. corn acreage (USDA, NASS, Jan. 1992). Costs and returns for corn production in 1991 are estimated for four major production regions: the North Central, Plains States, Southeast, and Northeast (fig. 1). The 1991 cost and return estimates are updated to reflect production and economic conditions and program changes in 1992. Standard USDA cost of production accounting methods for costs and returns are followed in this report, except for variations necessary to include the direct effects of Government programs. The costs and returns are for the farm operator and landlord combined. To facilitate comparisons between corn cost and return accounts with and without the effects of Government programs, all accounts are estimated on a per-planted-acre basis. For detailed information on estimation methods, see Morehart and others, 1992.

Reliable estimates of costs and returns, including program effects, can only be developed from actual data on the additional costs incurred because of program participation and on the amount of payments to participating producers. To be eligible to receive Government payments under commodity income support programs, producers must put some of their land into conserving uses and must maintain those "set-aside" acres in specific ways. FCRS data includes information on costs of establishment and maintenance of set-aside acres, such as input use and production practices used on corn set-aside acres. Costs are computed per set-aside acre and converted to a planted-acre basis using administrative record data from USDA's Agricultural Stabilization and Conservation Service (ASCS). The ASCS data also includes complying corn acreage, acreage receiving payments, and corn program yields--information necessary to compute farm program payments.

Estimates that include the direct effects of Government programs reflect all costs and returns associated with both the planted acreage and the required set-aside acreage. Costs associated with set-aside acreage affect most cost items published in the USDA cost and return accounts. Methods used to incorporate the direct effects of programs into the USDA account are described below.

Gross Value of Production

Gross value of production in the cost and return accounts that exclude the direct effects of Government programs is simply the market value of production. Market value of production is yield per planted acre valued at the average harvest-month market price. Corn yield is estimated from the 1991

FCRS and updated to 1992 using yields reported by the National Agricultural Statistics Service (NASS). Corn prices are reported by NASS in each year.

Including the direct effects of Government programs adds two other components to gross value of production. The largest addition to gross value of production is direct Government payments to producers who participate in the corn program. Participants in an income support program, such as that for corn, are paid according to the annual deficiency payment rate and a predetermined program yield. Deficiency payment rates are determined annually as the difference between target and market prices, while program yields are based on historical corn yields (see Glossary). Payments include estimates for planted corn acreage and zero/92 acreage eligible for deficiency payments. On planted corn acreage, ASCS program yields were valued at actual deficiency payment rates of \$0.41 per bushel in 1991 and \$0.73 per bushel in 1992 (table 1). Program yields are valued at the higher of the projected or actual payment rates in each year on eligible zero/92 acreage. Deficiency payments are converted to a per-planted-acre basis by the ratio of acreage receiving program payments to total planted corn acreage. The deficiency payment estimates are not adjusted for payment limitations.

The final component of gross value of production is income received from grazing or haying acreage put into conserving uses as permitted by the program. Haying income is estimated directly from the 1991 FCRS data, while income from grazing is estimated by valuing acreage grazed at the pasture rental rate. These estimates are updated for 1992 using changes in hay prices and yields and pasture rental rates.

Table 1--Characteristics of the 1991 and 1992 corn programs

Lower corn prices in 1992 caused the deficiency payment rate to increase from \$0.41 per bushel in 1991 to \$0.73 per bushel in 1992.

Item	Unit	1991	1992
Effective crop base	Million acres	82.7	82.1
Target price	Dollars per bushel	2.75	2.75
Deficiency payment rates:			
Projected	Dollars per bushel	.58	.48
Actual	Dollars per bushel	.41	.73
Mandatory acreage reduction	Percent of base	7.5	5.0
Participation	Percent of base	77	76

Note: Zero/92 option--In both 1991 and 1992 producers had the option of putting up to 100 percent of their corn base acreage in conserving uses and receiving deficiency payments on 92 percent of their maximum payment acreage at the higher of the projected or actual payment rate.

Variable Cash Expenses, Capital Replacement, Nonland Capital, and Unpaid Labor

The corn version of the FCRS provides information on inputs and field operations used on acreage that had to be set aside to participate in the corn program. Costs for chemicals, cover crop seed, and other input items per set-aside acre are estimated directly from the 1991 FCRS. Fuel, repairs, labor, capital replacement, and nonland capital costs per set-aside acre are estimated with methods identical to those used to estimate the cost of field operations on planted corn acreage. Estimates of machine cost per hour from engineering performance data are combined with machine hours used on set-aside acreage from the FCRS. All cost estimates are converted to a per-planted-acre basis according to the ratio of total set-aside acreage to total planted corn acreage. Seed costs for cover crops on conserving-use acreage are included with other variable costs. The 1991 cost estimates are updated to 1992 using changes in input prices and machinery values between the 2 years, along with changes in set-aside acreage.

General Farm Overhead and Interest

Some expenses are whole-farm expenses that are not specific to an individual commodity. General farm overhead includes such whole-farm expenses as utilities, motor vehicle registration, and legal fees in USDA cost and return accounts. Cash interest expense is also a whole-farm expense and is presented as a separate line item in USDA accounts. USDA allocates whole-farm expenses to individual commodities based on the commodity's share of the total value of farm production. The inclusion of the direct effects of programs affects both the total value and the relative values of production among farm commodities. For each program crop (corn, wheat, oats, barley, sorghum, rice, and cotton), estimates of deficiency payments are added to the crop value estimates. An individual commodity's share of total value of production may increase or decrease depending the crop mix, the size of program benefits, and the level of participation in each program.

Whole-farm expenses for general farm overhead and interest are allocated to the corn enterprise according to corn's share of the total value of farm production including deficiency payments. The estimates of general farm overhead and interest costs for corn in 1991 are updated to 1992 according to the change in per farm expenditures for these items and the change in the relative contribution corn made to total farm value of production.

Taxes, Insurance, and Operating Capital

Property tax and insurance costs are estimated in the same manner as general farm overhead and interest.

Whole-farm expenses for property taxes and insurance are allocated to the corn enterprise according to corn's share of the total value of farm production including deficiency payments. Real estate taxes are estimated by including the cost of real estate taxes on set-aside acreage. The cost of real estate tax per planted acre is adjusted by adding the portion of real estate tax cost represented by the ratio of total set-aside acreage to total planted corn acreage. The 1991 property tax and insurance estimates for corn are updated to 1992 according to the change in per farm expenditures on these items, and the change in the relative contribution corn made to total farm value of production. Real estate tax costs are updated to 1992 using changes in real estate tax rates and set-aside acreage. Operating capital is charged on variable cash costs including the program effects for half the year using the 6-month Treasury bill rate in both 1991 and 1992.

Land

USDA estimates land costs for all planted acreage of corn, regardless of whether owned by the operator or landlord. A net rental value is computed for land in a similar manner as in the account that excludes program effects. The rental value is a composite of cash and share rental values for corn acreage. Farmers surveyed in the FCRS report the actual cash rental rate paid for corn acreage under cash arrangements. Also reported are the share of production that landlords receive and the expenses paid by landlords under share rental agreements from which a net share rental rate is calculated. These two rates are weighted together according to the portion of land rented on a cash or share basis to yield a composite rental rate. This rental rate, less real estate taxes (included in taxes and insurance costs), is applied to all planted corn acres regardless of tenure.

When direct effects of the program are included, cash and share rental portions of the land cost estimates are the weighted average of those for planted corn acreage participating and not participating in the corn program. Cash rental rates on participating acreage are increased to reflect the rental costs associated with set-aside acreage. The per acre cash rent is adjusted by adding the portion of cash rent represented by the ratio of total set-aside acreage to total planted corn acreage. On nonparticipating acreage, cash rent is charged only on planted corn acreage. The two cash rental values are weighted together based on their proportion of total acreage cash rented. Cash rents are updated from 1991 to 1992 using secondary data on cropland cash rental rates, while participating acreage is adjusted from ASCS records.

In share rental agreements, a net share rental value is calculated as the value of the landlords' share of

production less landlord costs. The landlords' share of corn is valued at the harvest period market price on nonparticipating share rented acreage. The value of landlords' share of production on participating acreage reflects the market value of the corn, plus the value of its deficiency payments. Landlords are assumed to receive the same share of deficiency payments as they get from production. The two share rental values are weighted together based on their proportion of total acreage share rented. Share rental values are estimated for 1992 using updated corn prices, yields, and deficiency payments, and landlord costs. Cash and share rental values including the program effects are weighted together according to their proportion of total acreage rented.

Net Returns

The accounts include two estimates of net returns. Net returns after cash expenses equal the gross value of production less cash expenses. Net returns after economic costs, or residual returns to management and risk, are calculated by subtracting all costs of operator- and landlord-supplied factors of production from gross value of production. Calculating at least one of the factors as the residual satisfies the requirement that costs exactly equal returns. Management and risk are generally chosen to be calculated as the residual by economic and accounting convention.

Comparison of Corn Cost and Return Estimates for 1991 and 1992, with and without the Direct Effects of Government Programs

Gross value of production, production costs, and net returns per planted acre are all higher when the direct effects of Government programs are included in the corn cost and return accounts (table 2). Government programs added more than \$28 per planted acre to the U.S. gross value of production in 1991 and more than \$48 in 1992. In 1991, returns above cash expenses of U.S. corn growers improved by about \$24 per acre to \$95.72. Residual returns to management and risk in 1991 were about \$18 higher with program effects but remained negative at -\$19.84 per planted acre. Compared with those in 1991, returns above costs were much higher in 1992. Greater yields pushed the value of corn production nearly \$20 higher in 1992, while lower corn prices caused deficiency payments to increase by more than 70 percent from 1991. The effects of Government programs added about \$44 per acre to returns above cash expenses in 1992, while residual returns to management and risk improved by nearly \$34 and were a positive \$5.84.

Total economic costs increased by more than \$10 per planted acre in 1991 and nearly \$15 in 1992 due to the effects of Government programs. The greatest program effect on costs was on the cost of land.

Land cost alone accounted for about 60 percent of the increase in economic costs in 1991 and nearly 75 percent of the increase in 1992. The program effects caused a greater increase in land cost for 1992 because higher yields and program payments raised share rents. Variable cash costs of establishment and maintenance of set-aside acreage were \$1.42 per planted acre in 1991 but only \$0.81 in 1992. Lower costs in 1992 are attributed to program changes that reduced the mandatory acreage reduction (table 1). Fixed cash costs increased by \$3.46 per planted acre in 1991 and by \$3.89 in 1992 when the direct effects of programs were included. The greater effect on fixed cash costs stems from both costs that are allocated to the additional acreage in conserving uses and, more significantly, to the allocation of costs according to corn's share of total value of production including program benefits. Despite the lower mandatory acreage reduction in 1992, the increase in additional fixed cash costs from 1991 to 1992 can be attributed to the much higher value of corn production and deficiency payments in 1992.

The impacts of including the direct effects of Government programs on corn costs and returns vary significantly among major production regions. Programs most affect North Central and Plains corn growers due to much higher levels of producer participation (tables 3 and 4). About 70 percent of planted corn acreage in the North Central region and about 75 percent of planted corn acreage in the Plains States was enrolled in the corn program during both 1991 and 1992. Program effects caused returns above cash expenses to increase by about \$25 per planted acre in 1991 and \$45 per planted acre in 1992 for producers in both regions. Residual returns to management and risk in 1991 were much higher under the Government program, at least \$18 per acre, but remained negative in both regions. Greater yields and deficiency payments in 1992 improved residual returns to management and risk by about \$35 per planted acre and resulted in positive returns among both North Central and Plains corn growers. The improvement in the North Central region was the greatest from 1991 to 1992 because higher yields increased the value of corn production, while lower prices resulted in a 74-percent increase in deficiency payments. Residual returns to management and risk of \$11.46 per planted acre in the North Central region was much higher than in any other region.

Producer participation in the corn program was much lower in the Southeast and Northeast than in the North Central or Plains States. Only 42 percent of planted corn acreage in the Southeast and about 30 percent of planted corn acreage in the Northeast was enrolled in the corn program during 1991 and 1992 (tables 5 and 6). Lower participation resulted in much lower program payments and returns than in other regions. Among Southeast growers, program effects

caused returns above cash costs to increase only about \$15 per planted acre in 1991 and \$25 per acre in 1992. Program effects were even less in the Northeast where returns above cash costs were only about \$7 higher in 1991 and \$16 higher in 1992. Residual returns to management and risk remained negative in the Southeast and Northeast during both years, even when program effects were included. Residual returns to management and risk increased the most for Southeast producers in 1992 (-\$30.35 to -\$10.31) due to improved yields and greater program payments. Among all regions, residual returns to management and risk were the lowest in the Northeast during 1991 and 1992, both excluding and including program effects.

Conclusions

The analysis of corn cost and return estimates that exclude and include direct Government program effects indicates the extent to which programs enhance returns to corn production. Two primary factors appear to have the greatest influence on corn returns. First, the degree to which producers participate in the Government program for corn varies significantly among major production regions. Producers in the North Central and Plains States participate at a much greater rate than producers in the Southeast and Northeast. As a result, Government programs improve returns to corn production in the North Central and Plains States much more than in the other regions. Greater participation among North Central and Plains growers may be due, in part,

to greater corn acreage and larger corn base acres on which payments are made. Also, producers in the Plains States irrigate many more acres of corn than in the other regions. Program payments help to offset the greater costs associated with irrigation. In contrast, many corn growers in the Northeast also have dairy operations and may not participate due to the need to harvest corn for silage, rather than grain, to use as dairy feed (McBride, Jan. 1994).

Annual yield and price conditions also influence the extent to which Government programs enhance returns to corn production. For example, dry weather in some areas resulted in below average corn yields in 1991. Corn prices moved higher with the reduced supply. Since deficiency payments are computed as the difference between target and market prices, higher market prices resulted in lower payments. Producer returns were low in 1991 due to poor yields and reduced program payments. In contrast, record yields in 1992 caused much lower corn prices. Program payments increased because of the lower market prices. Returns to corn production were greatly improved in 1992 due to both higher yields and higher program payments. According to the analysis of program effects on corn costs and returns in 1991 and 1992, Government programs enhanced returns to corn production to a much greater extent during 1992, a year of high production. Lower corn prices resulting from high production were more than offset by greater program payments. During 1991, a year of low production, higher corn prices did not offset lower program payments.

Table 2A--U.S. corn production cash costs and returns per planted acre excluding and including the direct effects of Government programs, 1991 and 1992

Item	Excluding program effects		Including program effects ¹	
	1991	1992	1991	1992
<i>Dollars per planted acre</i>				
Gross value of production:				
Market value of corn grain	254.98	274.33	254.98	274.33
Deficiency payments	0.00	0.00	28.23	48.30
Haying/grazing on ACR and CU acreage ²	0.00	0.00	0.43	0.32
Total, gross value of production	254.98	274.33	283.64	322.95
Cash expenses:				
Seed	21.61	22.10	21.61	22.10
Fertilizer	44.59	43.16	44.59	43.16
Chemicals	22.46	23.46	22.56	23.53
Custom operations	9.21	9.54	9.21	9.54
Fuel, lube, and electricity	18.92	18.29	19.26	18.49
Repairs	13.31	14.83	13.58	14.89
Hired labor	7.37	7.74	7.44	7.79
Purchased irrigation water	0.41	0.40	0.41	0.40
Other variable cash expenses	0.00	0.00	0.64	0.43
Total, variable cash expenses	137.88	139.52	139.30	140.33
General farm overhead	10.39	10.58	11.28	11.81
Taxes and insurance	17.98	18.41	19.45	19.67
Interest	16.79	14.74	17.89	16.14
Total, fixed cash expenses	45.16	43.73	48.62	47.62
Total, cash expenses	183.04	183.25	187.92	187.95
Gross value of production less cash expenses	71.94	91.08	95.72	135.00
Harvest-period price (dollars per bushel)	2.31	2.05	2.31	2.05
Yield (bushels per planted acre)	110.38	133.82	110.38	133.82

Table 2B--U.S. corn production economic costs and returns per planted acre excluding and including the direct effects of Government programs, 1991 and 1992

Item	Excluding program effects		Including program effects ¹	
	1991	1992	1991	1992
<i>Dollars per planted acre</i>				
Gross value of production:				
Market value of corn grain	254.98	274.33	254.98	274.33
Deficiency payments	0.00	0.00	28.23	48.30
Haying/grazing on ACR and CU acreage ²	0.00	0.00	0.43	0.32
Total, gross value of production	254.98	274.33	283.64	322.95
Economic (full-ownership) costs:				
Variable cash expenses	137.88	139.52	139.30	140.33
General farm overhead	10.39	10.58	11.28	11.81
Taxes and insurance	17.98	18.41	19.45	19.67
Capital replacement	27.23	30.19	27.52	30.25
Operating capital	3.75	2.49	3.79	2.50
Other nonland capital	10.17	11.86	10.34	11.98
Land	61.61	64.29	68.04	75.43
Unpaid labor	23.54	24.99	23.76	25.14
Total, economic (full-ownership) costs	292.55	302.33	303.48	317.11
Residual returns to management and risk	-37.57	-28.00	-19.84	5.84
Harvest-period price (dollars per bushel)	2.31	2.05	2.31	2.05
Yield (bushels per planted acre)	110.38	133.82	110.38	133.82

¹Sixty-nine and 67 percent of planted corn acreage was enrolled in programs during 1991 and 1992, respectively.

²Acreage Conservation Reserve (ACR) and Conserving Use (CU) acreage.

Table 3A--North Central corn production cash costs and returns per planted acre excluding and including the direct effects of Government programs, 1991 and 1992

Item	Excluding program effects		Including program effects ¹	
	1991	1992	1991	1992
<i>Dollars per planted acre</i>				
Gross value of production:				
Market value of corn grain	247.82	272.90	247.82	272.90
Deficiency payments	0.00	0.00	29.19	50.75
Haying/grazing on ACR and CU acreage ²	0.00	0.00	0.30	0.22
Total, gross value of production	247.82	272.90	277.31	323.87
Cash expenses:				
Seed	21.42	21.96	21.42	21.96
Fertilizer	45.26	43.55	45.26	43.55
Chemicals	22.94	23.91	23.01	23.96
Custom operations	8.80	9.18	8.80	9.18
Fuel, lube, and electricity	12.58	12.65	12.89	12.82
Repairs	12.15	13.87	12.38	13.92
Hired labor	5.99	6.29	6.04	6.32
Purchased irrigation water	0.00	0.00	0.00	0.00
Other variable cash expenses	0.00	0.00	0.57	0.37
Total, variable cash expenses	129.14	131.41	130.37	132.08
General farm overhead	9.65	9.84	10.70	11.22
Taxes and insurance	18.21	18.47	19.69	19.72
Interest	15.49	13.65	16.85	15.26
Total, fixed cash expenses	43.35	41.96	47.25	46.20
Total, cash expenses	172.49	173.37	177.61	178.28
Gross value of production less cash expenses	75.33	99.53	99.70	145.59
Harvest-period price (dollars per bushel)	2.29	2.01	2.29	2.01
Yield (bushels per planted acre)	108.22	135.77	108.22	135.77

Table 3B--North Central corn production economic costs and returns per planted acre excluding and including the direct effects of Government programs, 1991 and 1992

Item	Excluding program effects		Including program effects ¹	
	1991	1992	1991	1992
<i>Dollars per planted acre</i>				
Gross value of production:				
Market value of corn grain	247.82	272.90	247.82	272.90
Deficiency payments	0.00	0.00	29.19	50.75
Haying/grazing on ACR and CU acreage ²	0.00	0.00	0.30	0.22
Total, gross value of production	247.82	272.90	277.31	323.87
Economic (full-ownership) costs:				
Variable cash expenses	129.14	131.41	130.37	132.08
General farm overhead	9.65	9.84	10.70	11.22
Taxes and insurance	18.21	18.47	19.69	19.72
Capital replacement	22.57	25.86	22.82	25.91
Operating capital	3.51	2.35	3.55	2.36
Other nonland capital	8.75	10.51	8.90	10.61
Land	66.40	71.89	73.41	84.42
Unpaid labor	24.62	25.93	24.84	26.09
Total, economic (full-ownership) costs	282.85	296.26	294.28	312.41
Residual returns to management and risk	-35.03	-23.36	-16.97	11.46
Harvest-period price (dollars per bushel)	2.29	2.01	2.29	2.01
Yield (bushels per planted acre)	108.22	135.77	108.22	135.77

¹Seventy and 69 percent of planted corn acreage was enrolled in programs during 1991 and 1992, respectively.

²Acreage Conservation Reserve (ACR) and Conserving Use (CU) acreage.

Table 4A--Plains corn production cash costs and returns per planted acre excluding and including the direct effects of Government programs, 1991 and 1992

Item	Excluding program effects		Including program effects ¹	
	1991	1992	1991	1992
<i>Dollars per planted acre</i>				
Gross value of production:				
Market value of corn grain	295.70	300.73	295.70	300.73
Deficiency payments	0.00	0.00	29.52	49.06
Haying/grazing on ACR and CU acreage ²	0.00	0.00	0.82	0.62
Total, gross value of production	295.70	300.73	326.04	350.41
Cash expenses:				
Seed	22.81	23.25	22.81	23.25
Fertilizer	40.71	40.08	40.71	40.08
Chemicals	20.63	21.94	20.85	22.10
Custom operations	11.51	11.96	11.51	11.96
Fuel, lube, and electricity	39.49	37.26	39.98	37.56
Repairs	16.52	17.57	16.96	17.64
Hired labor	8.85	9.57	8.98	9.67
Purchased irrigation water	1.76	1.75	1.76	1.75
Other variable cash expenses	0.00	0.00	0.84	0.61
Total, variable cash expenses	162.28	163.38	164.40	164.62
General farm overhead	13.52	13.78	13.93	14.60
Taxes and insurance	18.33	19.14	19.53	20.27
Interest	24.25	21.38	24.70	22.36
Total, fixed cash expenses	56.10	54.30	58.16	57.23
Total, cash expenses	218.38	217.68	222.56	221.85
Gross value of production less cash expenses	77.32	83.05	103.48	128.56
Harvest-period price (dollars per bushel)	2.31	2.14	2.31	2.14
Yield (bushels per planted acre)	128.01	140.53	128.01	140.53

Table 4B--Plains corn production economic costs and returns per planted acre excluding and including the direct effects of Government programs, 1991 and 1992

Item	Excluding program effects		Including program effects ¹	
	1991	1992	1991	1992
<i>Dollars per planted acre</i>				
Gross value of production:				
Market value of corn grain	295.70	300.73	295.70	300.73
Deficiency payments	0.00	0.00	29.52	49.06
Haying/grazing on ACR and CU acreage ²	0.00	0.00	0.82	0.62
Total, gross value of production	295.70	300.73	326.04	350.41
Economic (full-ownership) costs:				
Variable cash expenses	162.28	163.38	164.40	164.62
General farm overhead	13.52	13.78	13.93	14.60
Taxes and insurance	18.33	19.14	19.53	20.27
Capital replacement	43.02	45.76	43.49	45.84
Operating capital	4.41	2.92	4.47	2.94
Other nonland capital	14.82	16.56	15.08	16.76
Land	55.36	49.10	61.79	58.92
Unpaid labor	20.20	22.15	20.43	22.33
Total, economic (full-ownership) costs	331.94	332.79	343.12	346.28
Residual returns to management and risk	-36.24	-32.06	-17.08	4.13
Harvest-period price (dollars per bushel)	2.31	2.14	2.31	2.14
Yield (bushels per planted acre)	128.01	140.53	128.01	140.53

¹Seventy-seven and 73 percent of planted corn acreage was enrolled in programs during 1991 and 1992, respectively.

²Acreage Conservation Reserve (ACR) and Conserving Use (CU) acreage.

Table 5A--Southeast corn production cash costs and returns per planted acre excluding and including the direct effects of Government programs, 1991 and 1992

Item	Excluding program effects		Including program effects ¹	
	1991	1992	1991	1992
<i>Dollars per planted acre</i>				
Gross value of production:				
Market value of corn grain	224.24	255.33	224.24	255.33
Deficiency payments	0.00	0.00	19.10	28.36
Haying/grazing on ACR and CU acreage ²	0.00	0.00	0.47	0.34
Total, gross value of production	224.24	255.33	243.81	284.03
Cash expenses:				
Seed	18.74	18.90	18.74	18.90
Fertilizer	55.73	55.17	55.73	55.17
Chemicals	25.04	25.47	25.07	25.49
Custom operations	3.77	3.92	3.77	3.92
Fuel, lube, and electricity	14.67	14.75	14.83	14.85
Repairs	16.17	17.72	16.29	17.82
Hired labor	16.47	16.11	16.55	16.17
Purchased irrigation water	0.00	0.00	0.00	0.00
Other variable cash expenses	0.00	0.00	0.61	0.41
Total, variable cash expenses	150.59	152.04	151.59	152.73
General farm overhead	9.36	9.57	10.02	10.52
Taxes and insurance	11.75	12.72	13.95	14.59
Interest	8.64	7.29	9.18	7.95
Total, fixed cash expenses	29.75	29.58	33.15	33.06
Total, cash expenses	180.34	181.62	184.74	185.79
Gross value of production less cash expenses	43.90	73.71	59.07	98.24
Harvest-period price (dollars per bushel)	2.51	2.26	2.51	2.26
Yield (bushels per planted acre)	89.34	112.98	89.34	112.98

Table 5B--Southeast corn production economic costs and returns per planted acre excluding and including the direct effects of Government programs, 1991 and 1992

Item	Excluding program effects		Including program effects ¹	
	1991	1992	1991	1992
<i>Dollars per planted acre</i>				
Gross value of production:				
Market value of corn grain	224.24	255.33	224.24	255.33
Deficiency payments	0.00	0.00	19.10	28.36
Haying/grazing on ACR and CU acreage ²	0.00	0.00	0.47	0.34
Total, gross value of production	224.24	255.33	243.81	284.03
Economic (full-ownership) costs:				
Variable cash expenses	150.59	152.04	151.59	152.73
General farm overhead	9.36	9.57	10.02	10.52
Taxes and insurance	11.75	12.72	13.95	14.59
Capital replacement	25.05	27.60	25.14	27.70
Operating capital	4.10	2.72	4.12	2.73
Other nonland capital	9.29	10.79	9.35	10.84
Land	44.69	49.61	47.35	54.57
Unpaid labor	19.59	20.63	19.64	20.66
Total, economic (full-ownership) costs	274.42	285.68	281.16	294.34
Residual returns to management and risk	-50.18	-30.35	-37.35	-10.31
Harvest-period price (dollars per bushel)	2.51	2.26	2.51	2.26
Yield (bushels per planted acre)	89.34	112.98	89.34	112.98

¹Forty-two and 41 percent of planted corn acreage was enrolled in programs during 1991 and 1992, respectively.

²Acreage Conservation Reserve (ACR) and Conserving Use (CU) acreage.

Table 6A--Northeast corn production cash costs and returns per planted acre excluding and including the direct effects of Government programs, 1991 and 1992

Item	Excluding program effects		Including program effects ¹	
	1991	1992	1991	1992
<i>Dollars per planted acre</i>				
Gross value of production:				
Market value of corn grain	156.42	173.60	156.42	173.60
Deficiency payments	0.00	0.00	12.12	20.42
Haying/grazing on ACR and CU acreage ²	0.00	0.00	0.26	0.23
Total, gross value of production	156.42	173.60	168.80	194.25
Cash expenses:				
Seed	21.15	21.79	21.15	21.79
Fertilizer	41.77	37.76	41.77	37.76
Chemicals	21.59	21.23	21.59	21.23
Custom operations	9.11	8.94	9.11	8.94
Fuel, lube, and electricity	12.50	11.50	12.63	11.59
Repairs	10.90	11.67	10.99	11.73
Hired labor	12.83	13.18	12.88	13.22
Purchased irrigation water	0.00	0.00	0.00	0.00
Other variable cash expenses	0.00	0.00	0.60	0.46
Total, variable cash expenses	129.85	126.07	130.72	126.72
General farm overhead	5.39	5.52	6.49	6.83
Taxes and insurance	19.64	20.62	21.62	22.33
Interest	3.00	2.66	4.08	3.72
Total, fixed cash expenses	28.03	28.80	32.19	32.88
Total, cash expenses	157.88	154.87	162.91	159.60
Gross value of production less cash expenses	-1.46	18.73	5.89	34.65
Harvest-period price (dollars per bushel)	2.55	2.29	2.55	2.29
Yield (bushels per planted acre)	61.34	75.81	61.34	75.81

Table 6B--Northeast corn production economic costs and returns per planted acre excluding and including the direct effects of Government programs, 1991 and 1992

Item	Excluding program effects		Including program effects ¹	
	1991	1992	1991	1992
<i>Dollars per planted acre</i>				
Gross value of production:				
Market value of corn grain	156.42	173.60	156.42	173.60
Deficiency payments	0.00	0.00	12.12	20.42
Haying/grazing on ACR and CU acreage ²	0.00	0.00	0.26	0.23
Total, gross value of production	156.42	173.60	168.80	194.25
Economic (full-ownership) costs:				
Variable cash expenses	129.85	126.07	130.72	126.72
General farm overhead	5.39	5.52	6.49	6.83
Taxes and insurance	19.64	20.62	21.62	22.33
Capital replacement	16.44	17.60	16.54	17.66
Operating capital	3.53	2.25	3.56	2.26
Other nonland capital	8.45	9.47	8.51	9.52
Land	29.79	29.79	29.42	29.49
Unpaid labor	30.35	31.48	30.45	31.56
Total, economic (full-ownership) costs	243.44	242.80	247.31	246.37
Residual returns to management and risk	-87.02	-69.20	-78.51	-52.12
Harvest-period price (dollars per bushel)	2.55	2.29	2.55	2.29
Yield (bushels per planted acre)	61.34	75.81	61.34	75.81

¹Twenty-nine and 30 percent of planted corn acreage was enrolled in programs during 1991 and 1992, respectively.

²Acreage Conservation Reserve (ACR) and Conserving Use (CU) acreage.

Glossary

Corn farms are farm operations that planted corn in 1991 with the intent of harvesting the corn for grain. Corn farm data presented in this report is based on information from farmers contacted through the 1991 Farm Costs and Returns Survey, Corn Cost of Production version.

Corn production regions are groups of States with common cultural practices in raising corn. The North Central includes IL, IN, IA, MI, MN, MO, OH, and WI; the Plains includes KS, NE, SD, and TX; the Southeast includes GA, KY, LA, and NC; and the Northeast includes NY and PA.

Variable cash costs are costs for purchased inputs that are consumed in one production period. Variable costs depend on the chosen production practices, input quantities and prices, and level of output.

Fixed cash costs are costs that are borne by the farm business regardless of the size of the enterprise. Fixed costs do not depend on the level of output.

Economic costs are long-term costs that account for all production inputs, without regard to the ownership or equity position of farm operators. Economic costs are often referred to as full-ownership costs.

The **Agricultural Stabilization and Conservation Service** is a USDA agency responsible for administering farm price and income support programs as well as conservation and forestry cost-sharing programs.

Crop acreage base, for feed grains and wheat, is the 5-year moving average of land planted to a crop

plus land "considered planted" to a crop as certified and established by the ASCS. Land put into an approved conserving use is "considered planted" to a program crop.

Deficiency payments are Government payments made to farmers who participate in feed grain, wheat, rice, or upland cotton programs. The payment rate is based on the difference between a target price and the market price or loan rate, whichever difference is less. The total payment a farm receives is the payment rate multiplied by the eligible production (payment acreage times the program yield).

Target prices are commodity prices for feed grains, wheat, rice, and upland cotton, set by Congress, that are judged to provide a desirable return for farmers.

Program yields are official average yields based on historical production and have been frozen since 1986. In 1986, program yields equalled the 5-year average of the 1981-85 program yields, excluding the high and low yields, but not less than 90 percent of the 1985 program yield.

Set-aside or conserving-use acreage is the portion of a crop acreage base that must be idled and put into a conserving use. The conserving use must protect the land from weeds and from wind and water erosion.

Maximum payment acreage includes 85 percent of the crop acreage base less acreage required to be devoted to approved conservation uses under an acreage reduction program.

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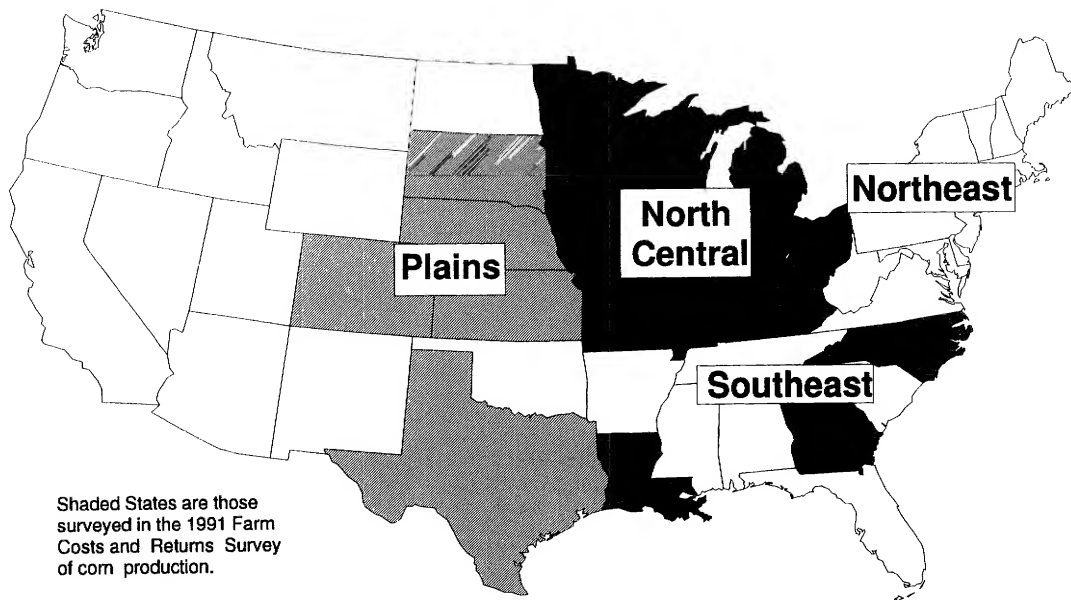
For information about the effects of Government programs on other crops see:

Brooks, N. *Effects of Government Programs on Sorghum Production Costs and Returns, 1990*, AIB-689. U.S. Dept. Agr., Econ. Res. Serv., Dec. 1993.

Salassi, M., M. Ahearn, M. Ali, and R. Dismukes. *Effects of Government Programs on Rice Production Costs and Returns, 1988*, AIB-597. U.S. Dept. Agr., Econ. Res. Serv., Mar. 1990.

Major U.S. corn production regions, 1991

Farmers surveyed in the production regions shown accounted for about 94 percent of total U.S. corn acreage.



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